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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,566	09/17/2003	James W. Iseli	IO-1096	4584

24923 7590 10/23/2006

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EXAMINER	
HUGHES, SCOTT A	

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/664,566	ISELI, JAMES W.	
	Examiner	Art Unit	
	Scott A. Hughes	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/7/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26,61-63 and 69-71* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26,61-63 and 69-71* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/7/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-26, 61-63 and 69-71 have been considered but are moot in view of the new ground(s) of rejection.

With respect claim 71, applicant argues that Wood does not teach a sensor unit generating signals from one selected location. Applicant notes that Wood teaches a recorder that receives information from a plurality of sensor locations. A plurality of locations includes one selected location, and therefore the Wood reference reads on the claim limitation.

With respect to claim 61, Applicant argues that Tanenhaus does not teach or suggest an apparatus for acquiring seismic data used to characterize a subsurface formation. Although Tanenhaus does not specifically disclose using the device for acquiring seismic data to characterize a subsurface formation, this is a statement of intended use and not a structural limitation of the apparatus being claimed. As Tanenhaus teaches all of the structure being claimed, Tanenhaus meets all of the structural limitations of the apparatus claim. It is noted that applicant's further arguments with respect to claim 61 and Tanenhaus are also directed to intended use statements in the claim and are not related to the structure being claimed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 69-70 are rejected under 35 U.S.C. 102(e) as being anticipated by Orban (6353577)

With regard to claim 69, Orban discloses a system for seismic data acquisition. Orban discloses a central controller (Column 1, Lines 1-15; Column 2, Lines 10-25; Column 3, Lines 29-40; Column 4, Lines 1-23). Orban discloses a plurality of sensors disposed to form a seismic spread having a plurality of sensing locations, the seismic spread being proximate to a subsurface formation of interest and generating signals indicative of the sensed seismic energy (Column 1, Lines 1-50; Column 1, Line 51 to Column 2, Line 15; Column 3, Lines 29-67). Orban discloses a separate recorder co-located with each sensor recording seismic information corresponding to a selected sensing location from the plurality of sensing locations (Column 4, Lines 10-23). Orban discloses each recording being in bi-directional communication with the central controller (Column 2; Column 3, Lines 29-40; Column 4, lines 10-24). Orban discloses a location sensor 58x,y,z associated with each recorder providing a location parameter, the location parameter being correlated with the acquired seismic data to image the subsurface formation (Column 5, Line 20 to Column 6, Line 24).

The limitation "the location parameter being correlated with the acquired seismic data" limitation in claim 69 is a recitation to a material or article worked upon, and does not limit the apparatus claim (See MPEP 2115).

This limitation is also a method limitation that does not further the apparatus since it does not limit the structure of the apparatus being claimed.

With regard to claim 70, Orban discloses an apparatus for imaging of a subsurface formation (abstract, Column 1). Orban discloses a plurality of sensors disposed to form a seismic spread having a plurality of sensing locations, the seismic spread being proximate to a subsurface formation of interest to sense seismic energy imparted into the subsurface formation and generate responsive signals (Column 1, Lines 1-50; Column 1, Line 51 to Column 2, Line 15; Column 3, Lines 29-67). Orban discloses a plurality of recorders, each of the plurality of recorders co-located with one sensor and recording in digital form seismic information corresponding to a selected sensing location from the plurality of sensing locations, the seismic information being in a form for seismic imaging of the subsurface formation (Column 1; Column 3, Line 29 to Column 4, Line 23). Orban discloses a location sensor 58x,y,z associated with each of the plurality of recorders providing a location parameter to be correlated with the acquired seismic data (Column 5, Line 20 to Column 6, Line 24).

Claim 71 is rejected under 35 U.S.C. 102(e) as being anticipated by Wood (5724241)

With regard to claim 71, Wood discloses a sensor unit 20 (Figs. 1-2) for sensing seismic energy, the sensor unit providing a signal indicative of the sensed seismic energy, the sensor unit being positioned over a subsurface formation of interest to sense seismic energy imparted into the subsurface formation and generate signals indicative of the seismic energy sensed from one selected location (Column 4, Line 50 to Column 5, Line 17; Column 5, Line 50 to Column 6, Line 49). Wood discloses a location sensor associated with each of the plurality of recorders providing a location parameter, the location parameter being correlated with the acquired seismic data (abstract; Column 6; Column 7, Lines 24-60). Wood discloses an acquisition device 10 co-located with the sensor unit and coupled thereto for receiving the signal and the location parameter (Figs. 1-2) (abstract; Column 4, Line 50 to Column 5, Line 17; Column 5, Line 50 to Column 6, Line 49; Column 7). Wood discloses a memory unit disposed in the acquisition device for storing information indicative of the received signal (Column 7, Lines 1-60). Wood discloses a direct-conversion radio transceiver for providing communication between the acquisition device and a remotely located central controller 16 (Fig. 1) (Column 5, Line 50 to Column 6, Line 25; Column 8, Line 20 to Column 9, Line30) (Table – Columns 8-9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-13, 15-26, 61, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanenhaus (6255962) in view of Orban (6353577).

With regard to claim 1, Tanenhaus discloses an apparatus for seismic data acquisition (Column 4, Lines 10-31). Tanenhaus discloses a sensor unit for sensing seismic energy, the sensor unit providing a signal indicative of seismic energy sensed by the sensor unit (Column 2; Column 4, Lines 10-45; Columns 5-6). Tanenhaus discloses an acquisition device co-located with the sensor unit and coupled thereto for receiving the signal (Figs. 1, 8-9) (abstract; Column 2; Column 5, Line 10 to Column 6). Tanenhaus discloses a location sensor associated with the acquisition device, providing a location parameter to only the acquisition device, the location parameter being processed with the acquired seismic data (Column 8, Lines 43-60). Tanenhaus discloses a memory unit having a first memory disposed in the acquisition device for storing in digital form information indicative of the received signal (Column 6, Lines 1-8; Column 6, Lines 55-65; Column 9). Tanenhaus discloses a second memory for storing a location parameter associated with the sensor unit (Column 8, Lines 50-60). Tanenhaus discloses a communication device for providing direct bi-directional communication between the acquisition device and a remotely located central controller (abstract; Column 7; Column 8, Lines 1-10, 26-43; Column 9) (Fig. 1, Fig. 9). Tanenhaus does not disclose that the apparatus is used in characterizing a subsurface formation. Tanenhaus discloses a device with sensors that for seismic data, but does not disclose these sensors being used to sense seismic data to characterize a

subsurface formation. Tanenhaus does not disclose coupling the seismic sensors to the earth and sensing seismic energy imparted into a subsurface formation and providing a signal indicative of seismic energy reflected from the subsurface formation and suitable for imaging the subsurface formation. Tanenhaus discloses a device that senses seismic data with sensors such as accelerometers, but does not disclose using the device in the environment of sensing data imparted into a subsurface formation. Orban teaches a device that includes circuitry and seismic sensors (abstract; Column 1). Orban teaches coupling the device to the earth's surface above a subsurface formation and using the acquired seismic data to characterize the subsurface formation (Column 1, Lines 1-15; Column 3, Line 1 to Column 4, Line 58). It would have been obvious to modify Tanenhaus to include coupling the device to the earth's surface and using the seismic sensors to sense energy reflected from the subsurface to image the subsurface as taught by Orban in order to obtain seismic data that is useful as information about subsurface stratigraphy in a given area.

The "for sensing," "suitable for imaging," for storing," and "for providing" clauses are essentially method limitations or statements or intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

The limitation "the location parameter being processed with the acquired seismic data" limitation in claim 1 is a recitation to a material or article worked upon, and does not limit the apparatus claim (See MPEP 2115).

This limitation is also a method limitation that does not further the apparatus since it does not limit the structure of the apparatus being claimed.

With regard to claim 2, Tanenhaus discloses that the sensor unit, location sensor, and the acquisition device are housed in a common housing (Fig. 9) (Column 8).

With regard to claim 3, Tanenhaus discloses that the sensor unit and the acquisition device are coupled together with a cable (Columns 4-6) (Figs. 1,9). The MEMS accelerometer sensors and other sensors (including other seismic sensors as disclosed) are connected to the rest of the circuitry in the device with wires. This is read as being connected by a cable since they are electrically connected to the rest of the acquisition device by conductors that allow the signals to be passed from one part of the device to another.

With regard to claim 4, Tanenhaus discloses that the sensor unit includes a velocity sensor (Column 4, Lines 10-45).

With regard to claim 5, Tanenhaus discloses that the sensor includes an accelerometer (Column 4, Lines 10-45).

With regard to claim 6, Tanenhaus discloses that the sensor unit includes a multi-component sensor (Column 4, Lines 10-45).

With regard to claim 7, Tanenhaus discloses that the sensor unit has a multi-component accelerometer having a digital output signal (Column 4, Lines 10-45; Column 5).

With regard to claim 8, Tanenhaus discloses an analog to digital converter disposed in the sensor unit, the signal provided by the sensor unit including a digital signal (Column 2; Column 5).

With regard to claim 9, Tanenhaus discloses that the signal is an analog signal, the apparatus further comprising an analog-to-digital converter disposed in the acquisition device for converting the signal to digital data (Column 2, Column 5).

With regard to claim 10, Tanenhaus discloses that the first memory is a nonvolatile memory (Column 6, Lines 55-65).

With regard to claim 11, Tanenhaus discloses that the first memory comprises a removable memory (Column 6, Lines 55-65). Flash memory is known to be removable.

With regard to claim 12, Tanenhaus discloses that the first memory comprises a nonvolatile removable memory card (Column 5, Lines 55-65).

With regard to claim 13, Tanenhaus discloses that the memory unit includes an inductive coupling device for transferring the information stored in the memory unit to an external device (Column 7; Column 8, Lines 1-10, 25-60).

With regard to claim 15, Tanenhaus discloses that the sensor unit is coupled to the acquisition device using a sensor connector, the memory unit also being coupled to the sensor connector for enabling retrieval of the information stored in the memory unit using the sensor connector (Figs. 1, 6-9). All of the components are connected together by circuitry that is read as being a sensor connector. The sensors, processors, and memory are all connected together inside of the acquisition device.

With regard to claim 16, Tanenhaus discloses that communication with the central controller provides wireless command and control for the apparatus (Column 2; Column 7; Column 8, Lines 1-10, 25-60; Column 9).

With regard to claim 17, Tanenhaus discloses a processor associated with the acquisition unit and the communication device, the processor processing programmed instructions enabling a software defined radio transceiver (Column 2; Column 7; Column 8, Lines 1-10, 25-60; Column 9).

With regard to claim 18, Tanenhaus discloses that the communication device includes a direct conversion radio transceiver for wireless communication between the apparatus and the remotely located central controller (Column 2; Column 7; Column 8, Lines 1-10, 25-60; Column 9).

With regard to claim 19, Tanenhaus discloses a processor in the acquisition unit for providing one or more of local control, time keeping, or power management (Column 7; Column 6, Line 65 to Column 7, Line 12).

With regard to claim 20, Tanenhaus discloses a power source disposed in the acquisition deice for providing electrical power to one or more of the acquisition device, the sensor unit, and the communication device (Column 7).

With regard to claim 21, Tanenhaus discloses that the power source is removable (Column 7, Lines 29-63).

With regard to claim 22, Tanenhaus discloses that the power source is a rechargeable battery (Column 7, Lines 29-63).

With regard to claim 23, Tanenhaus discloses an inductive coupling in the acquisition device, the inductive coupling being operably coupled to the rechargeable battery to allow charging of the rechargeable battery by a second power source external to the acquisition device (Column 7, Lines 29-63).

With regard to claim 24, Tanenhaus discloses a connector disposed in the data acquisition device, the connector being operably coupled to the rechargeable battery to allow charging of the battery by the external power device (Column 7, Lines 29-63).

With regard to claim 25, Tanenhaus discloses that the rechargeable battery is a lithium based battery (Column 7, Lines 29-63).

With regard to claim 26, Tanenhaus discloses a GPS receiver associated with the sensor unit for determining the location parameter (Column 8, Lines 50-60).

With regard to claim 61, Tanenhaus discloses a system for seismic surveying to characterize a subsurface formation. Tanenhaus discloses a central controller 50 (Fig. 1), a sensor unit 20 remotely located from the central controller, the sensor unit coupled to the earth for sensing seismic energy in the earth and for providing a signal indicative of the seismic energy reflected from the subsurface formation (Column 2; Column 4, Lines 10-45; Columns 5-6). Tanenhaus discloses a recorder device co-located with the sensor unit and coupled thereto for receiving the signal and for storing in digital form information indicative of the received signal in a first memory disposed in the recorder device (Figs. 1, 6-9) (Column 2; Column 4, Lines 10-65; Column 5; Column 6, Lines 42-65; Column 9). Tanenhaus discloses a location sensor associated with the acquisition device, providing a location parameter, the sensor unit, the recorder device, and the location sensor forming a single sensor station, the location parameter being correlated with the acquired seismic data to generate an image of the subsurface formation (Column 8, Lines 43-60) (Fig. 1). Tanenhaus discloses a second memory for storing a location parameter associated with the sensor unit (Column 8, Lines 50-60), and a communication device co-located with the sensor unit and the recorded device for providing bi-directional communication with the central controller (Column 2; Column 7; Column 8, Lines 1-10, 25-60; Column 9).

The "for seismic surveying," "for sensing seismic energy," "for providing signal," "for receiving," "for storing," and "to generate a image" clauses are essentially method limitations or statements or intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed

structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

> A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647
>
> Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.
>
> Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

The limitation "the location parameter being correlated with the acquired seismic data" limitation in claim 61 is a recitation to a material or article worked upon, and does not limit the apparatus claim (See MPEP 2115).

This limitation is also a method limitation that does not further the apparatus since it does not limit the structure of the apparatus being claimed.

With regard to claim 63, Tanenhaus discloses that the communication device includes a two-way wireless transceiver for wireless communication with the central controller (Columns 7-8).

Claims 14 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanenhaus in view of Orban as applied to claims 1-13 and 61 above, and further in view of Rialan (5276655).

With regard to claim 14, Tanenhaus does not disclose that the memory unit includes an optical coupling device for transferring the information stored in the memory unit to an external device. Rialan discloses a seismic survey system wherein the data is transferred from a memory unit to an external device by means of optical coupling device (Column 5). It would have been obvious to modify Tanenhaus to include an optical coupling device as taught by Rialan in order to transfer the data directly from one device to another without the operator of the devices having to leave the measuring space or without the receiver needing to be taken to another place to retrieve the data from it.

With regard to claim 62, Tanenhaus does not disclose an energy source for providing the seismic energy to the earth. Rialan discloses a seismic energy source S (Fig. 1) on the surface of the earth to provide seismic energy. It would have been obvious to modify Tanenhaus to include a seismic source in order to generate the seismic waves that can be recorded by the seismic sensors inside of the sensing device to obtain a seismic survey of an area.

Conclusion

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAH

JACK KEITH
SUPERVISORY